

**REMARKS/ARGUMENTS**

Claims 1-23 and 26-31 are pending. No claim has been amended, canceled, or added.

Applicants thank the Examiner for the interview of September 14, 2004. In the interview, the local disk system and remote disk system, recited in the claims, were explained and differentiated over the mass storages illustrated in the cited references.

Claims 1, 12, 16, 17, and 26-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohran in view of Yanai et al. Applicants respectfully traverse the rejection.

As explained in the interview, the claimed embodiments relate to a storage system having a local and remote disk systems (see Fig. 1). The "disk system" is an intelligent storage subsystem systems configured to communicate with a host computer and other disk systems. Example of such a disk system is a disk array unit (or storage subsystem) that is provided in a Storage Area Network (SAN).

The disk system, as recited in the claims, do not include a host computer, such as the primary and secondary systems 12 and 14 in Ohran (see Fig. 1). This is made clear from the specification.

Each disk system also has processors (not shown) on which appropriate software program run, additional memories for storing control data and tables for the software etc. One or more host computers 115 connect to at least on of the local disk system 100, by the connection of SCSI 122, Fibre, ESCON, etc. The host computer 115 accesses the disk in the local disk system through the connection 122. Page 4, lines 26-32.

Claim 1 also makes this clear. Claim 1 recites, "wherein the local disk system is coupled to a host computer to allow the host computer to access data stored in the local disk system."

In Ohran, the communication is between the primary system 12 and the secondary system 14, which are comparable to host computers in the present invention. Any encryption and decryption operation is performed by the primary and secondary systems, not at the mass storage level. Accordingly, the mass storage 20 does not perform, "...when a write of data is to

be made to the local disk system retrieving a previously stored encryption key; encrypting the data; transferring the data to the remote disk system..." Similarly, the mass storage 24 does not perform, "determining whether the data is to be stored in an encrypted form; determining an address for storage of the data in the remote disk system; if the data is to be stored in a decrypted form, decrypting and writing the data in the remote disk system; if the data is to be stored in an encrypted form, writing the data in the remote disk system without decrypting the data..." Yanai does not remedy this deficiency. Claim 1 is allowable at least for this reason.

Claim 12 recites, "storing an encryption key in a memory in the local disk system; transmitting the encryption key to the remote disk system and storing it in a memory there; issuing split request from the local disk system to the remote disk system to allow them to operate independently; using a new encryption key to begin storing data in the local disk system after issuing the split request; using a new encryption key to begin storing data in the remote disk system after receiving the split request; and resynchronize the local disk system and the remote disk system." Ohran and Yanai, alone or in combination, does not disclose or suggest the above features. Claim 12 is allowable.

Claim 16, "storing an encryption key in a memory in the local disk system; transmitting the encryption key to the remote disk system and storing it in a memory there; splitting the local disk system from the remote disk system to allow them to operate independently; switching encryption to an opposite state from a previous state after splitting the local disk system and remote disk system; and re-synchronizing the local disk system and the remote disk system." In Ohran, since the encryption and decryption are performed at the primary and secondary systems, the encryption and decryption keys are not stored in the local and remote disk systems, as recited in claim 16. Yanai does not remedy this deficiency. Claim 16 is allowable.

Claim 17 recites, "a local disk system including a plurality of volumes of media for storing data, said local disk system being coupled to a host computer to enable the host computer to access said volumes; a remote disk system including a plurality of volumes of media for storing data; and a communications link coupling the local system to the remote system,

wherein the local disk system determines whether encryption is to be employed in the data on the local disk system, and if so, encrypts the data to be transferred to the remote disk system, and wherein the remote disk system determines whether to store the data in either encrypted form or unencrypted form and stores the data in that form in the remote disk system, and notifies the local disk system that the data has been stored." Ohran and Yanai, alone or in combination, does not disclose or suggest the above features. Claim 17 is allowable.

Claim 26 recites, "a local memory storing an encryption key in the local system; a communications link for transmitting the encryption key to the remote disk system and storing it in a remote memory there; a first computer program for splitting the local system from the remote system to allow them to operate independently; a switch for changing encryption to an opposite state from a previous state after splitting in the local disk system and remote disk system; and a second computer program for re-synchronizing the local system and the remote system." Ohran and Yanai, alone or in combination, does not disclose or suggest the above features. Claim 26 is allowable.

Claim 27 recites, "[in the local disk system,] receiving a data update request from a host computer connected to the local disk system wherein said data update request includes a location of a first portion of the local disk system; assigning a key to the first portion of the local disk system; encrypting the data stored in the first portion of the local disk system; transferring the encrypted data to the remote disk system..." The claims also recites, "[in the remote disk system,] decrypting the data using the assigned key; and writing the decrypted data into a second portion of the remote disk system." Ohran and Yanai, alone or in combination, does not disclose or suggest the above features. Claim 27 is allowable.

Claim 30 recites, "a local disk system including a plurality of volumes of media for storing data; wherein the local disk system is connected to a host computer; a remote disk system including a plurality of volumes of media also for storing data; a communications link coupling the local disk system to the remote disk system, wherein the local disk system retrieves selected data from one of the volumes on the local system, encrypts that selected data using an encryption key, and transmits the encrypted selected data to the remote disk system, and wherein

the remote disk system decrypts the selected data received from the communications link and stores that selected data in unencrypted form in one of the volumes of media the remote system." Ohran and Yanai, alone or in combination, does not disclose or suggest the above features. Claim 30 is allowable.

Claims 2-8, 18-22 and 31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohran in view of Yanai further in view of Jacobson. Applicants respectfully traverse the rejection. Claims 2-8 depend from claim 1; claims 18-22 depend from claim 17; claim 31 depend from claim 30. Accordingly, claims 2-8, 18-22 and 31 are allowable at least for this reason.

Claims 9-11, 13-15 and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohran. These claims depend from one of the independent claims above and are allowable at least for this reason.

### CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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